UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

February 15, 2006

REPLY TO THE ATTENTION OF
DE-9J

Mr. Ron Stone
Michigan Department of Environmental Quality
Constitution Hall - Atrium North
525 W. Allegan Street
Lansing, MI 48933

Re: Statement of Basis
Henkel Corporation
MID 058 723 867

Dear Mr. Stone:

The United States Environmental Protection Agency (U.S. EPA) has prepared the attached Statement of Basis for corrective action at the Henkel Surface Technologies, Morenci, MI site.

We have prepared the Remedial Action Team (RAT) forms for consideration at your next RAT Team meeting on February 22, 2006. Mr. Patrick Brennan of MDEQ asked that I send this document to you for your consideration, prior to that meeting, for the purpose of providing you with any information you may need. This Statement of Basis, along with the index of documents (and the documents themselves) used to make the remedy determination are included.

If you have any questions regarding this letter or the enclosure, please contact me at (312)353-2720.

Sincerely,

Brian P. Freeman,
Senior Chemist, Corrective Action Project Manager
RCRA Enforcement and Compliance Assurance Branch

cc: section file

STATEMENT OF BASIS

Henkel Surface Technologies
Morenci, MI
MID 058 723 867

February 15, 2006

United States Environmental Protection Agency, Region 5

U.S. Environmental Protection Agency
Region 5

STATEMENT OF BASIS
Henkel Surface Technologies Site
Morenci, Michigan
MID 058 723 867

INTRODUCTION

This Statement of Basis for the site of the former Henkel Surface Technologies facility in Morenci, MI ("Site") explains the process for cleaning up contaminated soils and groundwater, protecting future harm from the Site, and provides the rationales for the proposal. The U.S. Environmental Protection Agency (U.S. EPA) is issuing this Statement of Basis as part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). As described below, members of the public are being afforded opportunity to review and comment on the cleanup and protection proposal set forth below.

This document summarizes information that can be found in greater detail in the Administrative Record for this Site. The U.S. EPA and the Michigan Department of Environmental Quality (MDEQ), which directed the closure of regulated units at the Site, encourage interested members of the public to review these documents in order to gain a more comprehensive understanding of the Site and the RCRA-related activities that have been conducted, and are being proposed, at the Site.

PROPOSED REMEDY

The U.S. EPA, in conjunction with the MDEQ, is proposing the following remedy to address the contaminated soils and groundwater at the Site:

Land Use Restrictions (Declaration of Restrictive Covenants, Lenawee County, MI) for the remaining Site property. Site property is identified as Lenawee County TAX ID HM0-305-0330-00. The restrictions shall provide that:

> a) The owner shall restrict the use of the property to uses compatible with commercial, II, III or IV land use categories, as defined by MDEQ pursuant to Section 20120a(1) of Part 201 of NREPA, as in effect as of November 22, 2005, or other use that is consistent with the assumptions and basis for the cleanup criteria established pursuant to Section 20120a(1)(b),(d),(g) or (i). The owner must also comply with MDEQ's Part 201 requirements regarding physical hazards. This will involve a deed notice that broken glass and china existing in the subsurface soil of the creek bank in the area formerly known as Waste Area 6 could present a hazard to construction workers. Cleanup criteria for land use-based remedial action plans are located in the Government Documents Section of the State of Michigan Library.

b) The owner shall prohibit the construction of wells or other methods or devices on the property to extract groundwater from the shallow aquifer under the property for consumption, irrigation, or any other use unless approved by MDEQ Short term de-watering for construction purposes is permitted provided that such de-groundwater, is conducted in accordance with all applicable local, state and federal laws and regulations.

It should also be noted that the owner must obtain a mixing zone approval from MDEQ under the State regulations implementing the Clean Water Act, because the concentration of vinyl chloride in the groundwater discharging from the site to Bean Creek currently exceeds the MDEQ groundwater/surface water interface criteria. The MDEQ review of the mixing zone is already underway. Such approvals usually require semiannual groundwater monitoring to verify compliance with the conditions of the MDEQ mixing zone approval, and a financial assurance requirement. A more detailed discussion of the proposed remedy is set forth below.

FACILITY BACKGROUND

The Site is located in Morenci; Lenawee County, Michigan, on the west side of Mill Street approximately 350 feet north of Main Street (see Site Location Map on Page 5). The Site contains approximately four acres of grass-covered land and is completely fenced. Bean Creek trends north/south near the western property boundary. The Site is located in a predominantly urban area. Commercial properties are located south and southeast of the Site. Bean Creek and a public park are located west of the Site, residential properties are located east of the Site, and agricultural land is located north of the Site.

Prior to 1928, the site was used for a dairy farm and creamery. The Site has been subsequently owned and operated by Oxy Metals Corporation (a division of Occidental Chemical Company), Hooker Chemical Company, Ford Motor Company, Parker Chemical, and Henkel Corporation. These companies had active operations at the Site from 1928 to 1988. During October 1981, Oxy Metal merged into Hooker Chemicals and Plastics Corporation, and during August 1982, Hooker changed its name to Occidental Chemical. In October 1983, Parker Division of Occidental Chemical was sold to Parker Chemical Company. In April 1987, Henkel Corporation acquired Parker Chemical. Parker Chemical continued to operate at the Site. On January 1, 1989, Amchem Products, Inc. and Parker Chemical Inc. merged into Henkel Corporation. Henkel Corporation operated on the Site until February 1988.

The Site is currently vacant and no industrial operations are being conducted on the Site. The former east portion of the Site has been legally separated and sold to the City of Morenci

REGULATORY AND REMEDIAL HISTORY

On September 29 1982, U.S. EPA issued a Notice of Complaint vs. Parker Chemical (a subsidiary of Occidental Chemical, predecessors of Henkel) and assessment of a proposed civil penalty of $25,000 for RCRA violations involving improper storage, treatment and disposal of hazardous waste at the Site. Several hundred drums, some of which were leaking and damaged were noted on site, with inspection reports and photos provided by MDEQ inspectors. On July 8, 1983, a cashier's check in the amount of $25,000 was paid to the U.S. Treasury as payment for the civil penalty for these violations (U.S. EPA Docket #V-W-82-R-021).

On April 23, 1986, a Preliminary Assessment/Visual Site Inspection (PA/VSI) was conducted for the Site by Ecology and Environment Inc, a contractor to the U.S. EPA. Leaking and damaged drums had been removed by this time. Included in the PA/VSI report was information derived from review of the MDEQ inspection reports and sampling events, and the PA/VSI assigned a hazard ranking to the Facility taking into account materials of concern at the Site, including but not limited to polychlorinated biphenyls (PCBs), toluene, benzene, ethylbenzene, hydrofluoric acid, ethylamine, chromium, cadmium, arsenic, nickel, lead and copper. No soils had been cleaned up or removed at that time. The PA/VSI report summarized information from MDEQ inspection reports on releases of chemicals of concern from the Site to Bean Creek, including PCBs.

The Site was operated by Henkel Corporation as a hazardous waste management facility from November 19, 1980, to 1988 (MID 058 723 867). During that time, seven distinct hazardous waste storage areas were present (see Facility Map, p.5). Beginning in 1988, all drums and waste materials were removed. All structures on the Site were razed in 1993. No industrial or commercial operations have been conducted on the Site since that time.

In accordance with an Approved Closure Plan dated November 24, 1993, a soil investigation was conducted by Henkel in January, 1995, addressing the closure of seven former hazardous waste storage areas. Soil investigations continued from 1994 through 1999. Based on lead being found present in Waste Area 6 above the "Type B" cleanup criteria, a limited soil removal was conducted by Henkel in August of 1999 from this area of the Site. (see Facility Map, page 6). The removal involved excavation (and disposal at a Type II landfill) of 1560 cubic yards of soil, filling with clean sand, and collection and testing of 85 soil verification samples. The verification samples showed lead at less than the direct contact criteria of 400 parts per million.

In September of 2002, under an agreement with U.S. EPA, Henkel conducted additional soil and groundwater sampling at and around the Site. Henkel sampled four groundwater monitoring wells (MW) on the Site, and volatile organic compounds (VOCs) - (vinyl chloride, 1,1-dichloroethene (1,1 DCE), cis 1,2-dichloroethene (1,2 DCE) and trichloroethylene (TCE) were detected in MW3. Only vinyl chloride was present in excess of both the drinking water criterion and the Groundwater/Surface Water Interface Criterion (GSI), at between 19 and 30 ppb. Applying mixing zone criteria, Henkel's engineering firm calculated that the GSI criterion would be met, but confirming this will require a GSI analysis by the appropriate MDEQ authorities.

Although vinyl chloride was found in excess of drinking water standards, the groundwater was not used for drinking purposes, nor did it flow beyond Bean Creek, which forms a hydraulic boundary. Since the sources of the groundwater contamination were removed several years ago, natural attenuation is already underway. We expect that the vinyl chloride levels will decrease as time goes on.

Sampling of soils at the Site in 2002 revealed that VOCs were detected in one soil sample above residential standards, but below commercial II standards found in the MDEQ Part 201 Cleanup Criteria. Part 201 direct contact cleanup criteria are chemical concentrations that correspond to fixed levels of risk (i.e., either a one-in – hundred thousand (10^{-5}) excess cancer risk or a non-carcinogenic hazard quotient of 1 when an individual is exposed to soil or water through skin contact and ingestion. Polynuclear Aromatic Hydrocarbons (PAHs) were detected in one soil sample in excess of residential standards, but below commercial II MDEQ Part 201 Cleanup Criterion. Soil sampling did not reveal the presence of levels of concern of polychlorinated bi-phenyls (PCBs).

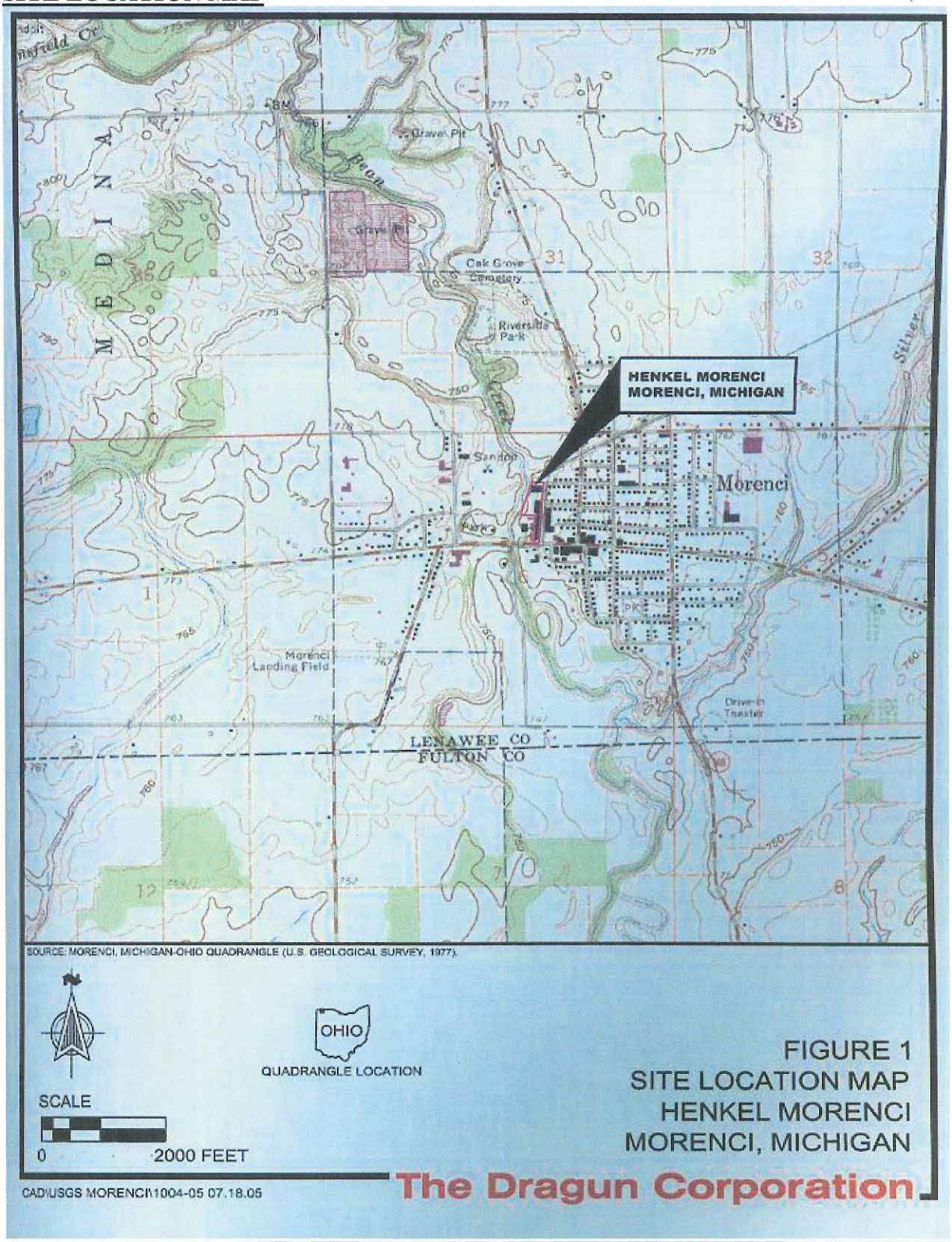
During the 1999 soil removal, debris was found in subsurface soils at the Site on the bank of Bean Creek. The debris resembled that of a dairy/creamery operation, and contributed to lead levels in excess of the MDEQ Part 201 Direct Contact Cleanup Criterion.

Sediment Sampling of Bean Creek was performed in 2004 by US EPA and Henkel, and the sediments were tested for metals, VOCs, PAHs and PCBs. Review of the results showed no apparent impact from facility operations.

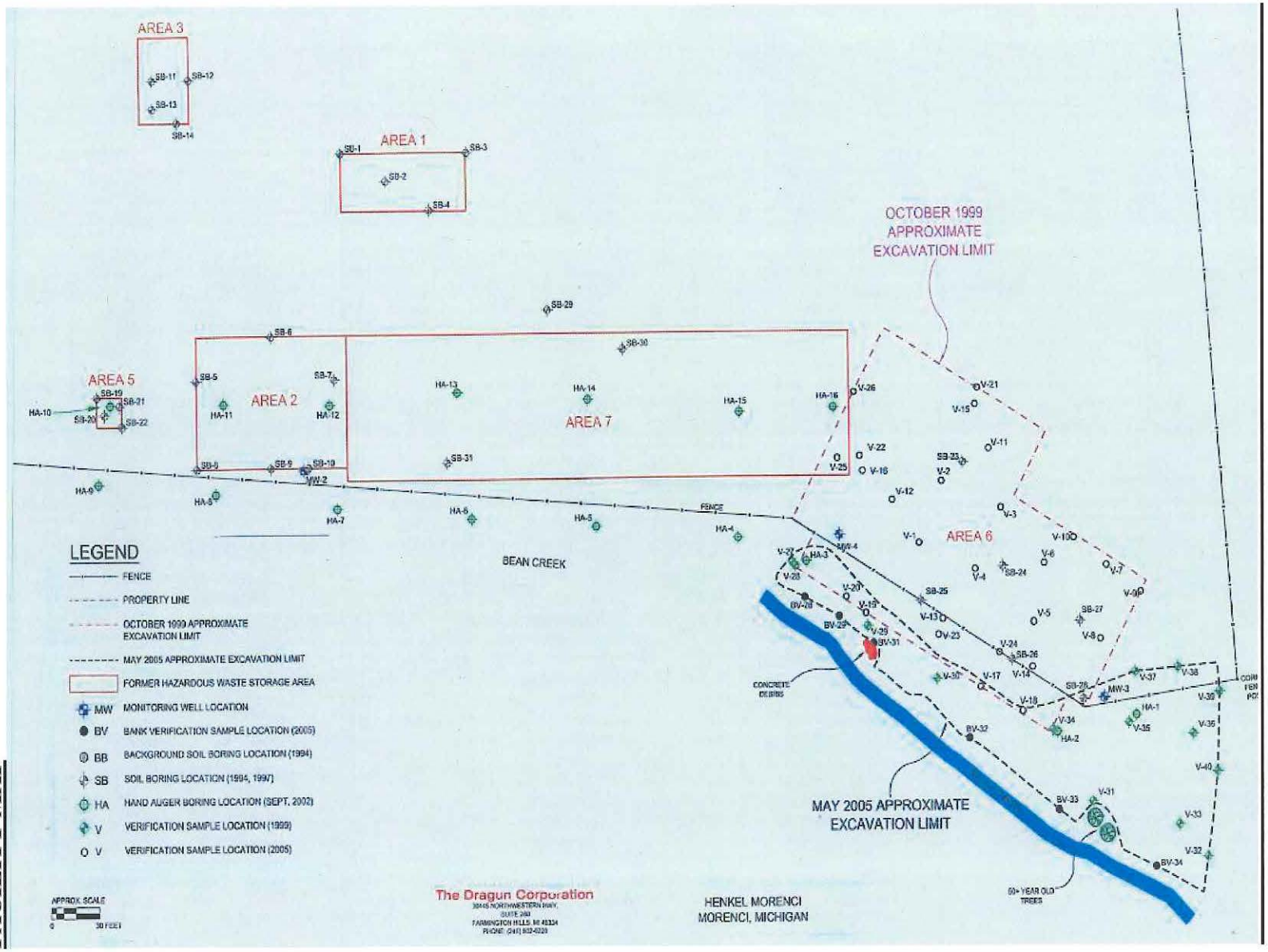
An Agreed Administrative Order between the U.S. EPA and Henkel was signed January of 2005. The Order, in part, called for the removal of soil from Waste Area #6. As a result, in May-June of 2005, approximately 45,600 cubic feet of soil was removed from the Site, and hauled to a Type II landfill. This amounted to 7600 square feet, excavated two to ten feet deep, depending on the creek bank stability. Verification sampling prior to filling revealed that some of the soil samples still indicated between 427 to 793 parts per million of lead, still in excess of the MDEQ Part 201 Direct Contact Cleanup Criterion, but further removal would have de-stabilized the creek bank, so the bank material, along with remaining fragments of broken glass from the old creamery operation was left in place and the creek bank excavation was re-filled with native coarse sand.

As a result of the existence of VOCs, PAHs (each in only one sample location) and lead above residential standards, but below commercial II MDEQ Part 201 Cleanup Criteria, state law requires that future land use of the Site should be limited to commercial/industrial activities.

SITE LOCATION MAP



FACILITY MAP



SAMPLING SUMMARY FROM FACILITY MAP

SAMPLING SUMMARY

AREA 1	DATE
4 Soil Borings	1994
8 Soil Samples	1994
1 Soil Sample	1997

AREA 2	DATE
6 Soil Borings	1994
13 Soil Samples	1994
2 Hand Auger Soil Samples	2002

AREA 3	DATE
4 Soil Borings	1994
7 Soil Samples	1994

AREA 4	DATE
4 Soil Borings	1994
4 Soil Samples	1994
1 Soil Sample	1997

AREA 5	DATE
4 Soil Borings	1994
10 Soil Samples	1994
1 Soil Sample	1997
1 Hand Auger Soil Sample	2002

AREA 6	DATE
6 Soil Borings	1994
23 Soil Samples	1994
11 Soil Leachate Samples	1994
4 Soil Samples	1997
4 Soil Leachate Samples	1997
86 Verification Soil Samples	1999
20 Verification Soil Samples	2005

AREA 7	DATE
3 Soil Borings	1990
6 Soil Samples	1990
3 Soil Samples	1994
4 Soil Samples	1994
1 Soil Sample	1997
4 Hand Auger Soil Samples	2002

MONITORING WELLS MW-1, MW-2, MW-3, & MW-4	DATE
3 Soil Samples	1983
2 Groundwater Samples	1983
6 Groundwater Samples	1989
4 Groundwater Samples	1994/95
2 Groundwater Samples	1998
1 Groundwater Sample	2001
1 Groundwater Sample	2002

BEAN CREEK	DATE
5 Sediment Samples	1982
3 Surface Water Samples	1982
1 Seepage Water Sample	1982
4 Sediment Samples	2004

Background Soil Borings	DATE
2 Soil Borings	1990
2 Soil Samples	1990
24 Soil Samples	1994
5 Background Soil Borings	1994
1 Soil Leachate Sample	1994

BEAN CREEK BANK	DATE
9 Hand Auger Soil Samples	9/2002

FIGURE 3
SOIL AND GROUNDWATER SAMPLING SUMMARY MAP

SCALE: 1" = 30'
PROJ.NO.: 1004-05
SHEET: 1 OF 1

SUMMARY OF FACILITY RISKS

Sampling of Site soils, groundwater and Bean Creek sediments has been performed, and a human health risk assessment was conducted by Henkel using MDEQ Part 201 Cleanup Criteria.

With respect to soil and fill testing, site analytical data was compared to MDEQ Part 201 Industrial and Commercial II, III and IV Cleanup Criteria, protective of direct contact risks from site soils, ambient air inhalation risks of site soils, inhalation risks from indoor air exposures from site soils, soil impacts on groundwater quality, and on potential impact on surface water quality. Zinc was detected in one soil sample at a concentration in excess of MDEQ drinking water criteria, and xylenes, fluoranthene, phenanthrine and hexavalent chromium were each detected in one soil sample above the groundwater/surface water interface (GSI) criterion. Benzo(a)pyrene and dibenzo(a)anthracene were detected in one soil sample (HA-10) at concentrations in excess of the residential contact cleanup criteria, but below industrial or commercial II, III or IV direct contact cleanup criteria. Lead was detected in soil location HA-1 in a concentration in excess of the residential direct contact cleanup criterion. Thus, U.S. EPA concludes that the Site is sufficiently safe for commercial or industrial land use, but residential land use of the Site should be prohibited.

Additionally, several groundwater exposure pathways were evaluated, including groundwater contact exposure, drinking water exposure, and groundwater as it affects surface water quality, and groundwater risks impacting indoor air inhalation exposure. Vinyl chloride was detected in Monitoring Well 3 at a concentration in excess of the drinking water and GSI criterion (15 ppb), but Bean Creek sediments collected upstream, at the site perimeter, and downstream did not reveal impacts of concern from the Site. A previous hydro-geological study conducted by Apollonius Inc. revealed that Bean Creek serves as a hydraulic boundary for shallow groundwater at the facility, and shallow groundwater is not used for drinking water purposes. Accordingly, the contaminated groundwater does not pose any human health or ecological risks as long as the construction of drinking water wells on the Site is prohibited.

It appears that the discharge of contaminated groundwater will not impair any of the uses of Bean Creek, however, this determination would have to be confirmed by mixing zone determination by MDEQ.

SCOPE OF CORRECTIVE ACTION

The scope of this corrective action was to:

1) Identify the areas of lead contamination within and adjacent to Area 6, remove them by soil excavation, and perform conformational sampling and analysis for remaining lead, and

2) Require placement of deed restrictions on the use of shallow groundwater, and on future land use, limiting use to commercial II, III or IV or industrial uses, to comply with

State law. The discharge of contaminated groundwater to Bean Creek must comply with any requirements imposed by MDEQ.

REMEDY SELECTION CRITERIA

U.S. EPA has the following expectations for remediation to be incorporated into Resource Conservation and Recovery Act (RCRA) Corrective Action. The proposed remedy must:

1) Protect human health and the environment. The covenants restricting land and groundwater use mentioned earlier meet will be protective of human health.

2) Attain media cleanup standards. The restrictive covenants applied cause this site to meet the media cleanup standards for MDEQ Part 201 Commercial II land use. The discharge of contaminated groundwater to Bean Creek will comply with MDEQ requirements.

3) Control the source of releases. The removal of soils in Waste Area #6 controlled all known source areas of contamination from the site.

4) Comply with applicable standards for waste management. Soils removed from Waste Area # 6 were tested for leachablility prior to removal and were found to be non-hazardous, and removed by Onyx Corporation to Arbor Hills Landfill in Northville, MI.. Remaining soils meet MDEQ Part 201 Commercial II land use requirements.

SUMMARY OF ALTERNATIVES

It was the desire of Henkel Corporation and the City of Morenci Michigan that the Site be made available for commercial or industrial reuse. The deed restrictions facilitate this purpose.

PUBLIC COMMENT AND PARTICIPATION

The U.S. EPA solicits input from the community, and interested members of the public, on the cleanup and protection methods chosen. The U.S. EPA has set a public comment period of **3/30/2006 through 5/15/2006**, to encourage public participation in the cleanup process. If significant comments at odds with the proposal are received, a Public Meeting will be arranged, at which U.S. EPA will present this Statement of Basis, answer questions, and accept both oral and additional written comments. Written comments on this proposal should be addressed to:

Project Manager, Henkel Surface Technologies Facility
U.S. EPA Region 5
RCRA Enforcement and Compliance Assurance Branch

Corrective Action Section
77 W. Jackson, DE-9J
Chicago, Illinois 60604

All public comments received during the public comment period will be answered in writing.

The reports referenced above in this Statement of Basis for the Site are available at:

U.S. EPA - Region 5
77 W. Jackson
Federal Records Center - 7th Floor
Chicago, Illinois 60604

City of Morenci, City Hall
118 Orchard Street
Morenci, Michigan 49256

MIO 058 723 867

Waste, Pesticides and Toxics Division

Type of Document: Statement of Basis

Name of Document (FacilityName & Location): Henkel Surface Technologies, Morenci, MI

Document # (EPA ID#) henkelsob.doc **Originator/Phone:** 312-353-2720

NOTE: Originator and first level supervisor are responsible for assuring that documents are in plain language. All other reviewers should consider plain language in their reviews. See the plain language checklist on the reverse side of this sheet.

Date	Name	Secretary/Chief Initials
1/12/2006	Brian P. Freeman Author	
1-27-06	George Hamper ECAB Section Chief	
1/27/06	Gerald Phillips Corrective Action Manager	
2/16/06	Andre Daugavietis Asst. Reg. Counsel	AD (as revised)
2/16/06	Sandra Lee Chief, ORC Section	
	Margaret M. Guerriero, Director, Waste Pesticides and Toxics Division	
	IL/MI State Coordinator	
	IN/MN State Coordinator	
	OH/WI State Coordinator	
	Congressional/Intergovernmental	
	Relation Officer (AL/ORAC)	
	Deputy RA	
	Regional Administrator	

Return for Mailing _____ **Correction Required** _____

REMARKS/COMMENTS

The Public Comment Period dates are subject to change, until this document receives final approval. After approval, the dates can be finalized.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

February 15, 2006

REPLY TO THE ATTENTION OF
DE-9J

Mr. Ron Stone
Michigan Department of Environmental Quality
Constitution Hall - Atrium North
525 W. Allegan Street
Lansing, MI 48933

Re: Statement of Basis
Henkel Corporation
MID 058 723 867

Dear Mr. Stone:

The United States Environmental Protection Agency (U.S. EPA) has prepared the attached Statement of Basis for corrective action at the Henkel Surface Technologies, Morenci, MI site.

We have prepared the Remedial Action Team (RAT) forms for consideration at your next RAT Team meeting on February 22, 2006. Mr. Patrick Brennan of MDEQ asked that I send this document to you for your consideration, prior to that meeting, for the purpose of providing you with any information you may need. This Statement of Basis, along with the index of documents (and the documents themselves) used to make the remedy determination are included.

If you have any questions regarding this letter or the enclosure, please contact me at (312)353-2720.

Sincerely,

Brian P. Freeman,
Senior Chemist, Corrective Action Project Manager
RCRA Enforcement and Compliance Assurance Branch

cc: section file

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGIONS 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

REPLY TO THE ATTENTION OF: DE-9J

March 23, 2006

Ms. Renee Schroeder
City Clerk and Administrator
The City of Morenci, Michigan
118 Orchard Street
Morenci, MI 49256

Dear Ms Schroeder:

The United States Environmental Protection Agency (U.S. EPA) is seeking input from the community on a Statement of Basis for Contaminated Soils and Groundwater at the former Henkel Surface Technologies site. The Statement of Basis documents the environmental condition at the Henkel site, outlines remediation alternatives for contaminated soils and groundwater proposed by Henkel, and presents the U.S. EPA's proposed remedy selection. Final selection of the remedy will be made following public comment.

The proposed corrective action is issued under the provisions of Section 3008(h) of the Resource Conservation and Recovery Act of 1976 as amended 42 U.S.C. Section 6928(h).

A public notice will appear on Wednesday, March 29, 2006 in the State Line Observer and on WQTE Radio, during the morning and afternoon drive times. You can obtain more information by login in the web at:

http://www.epa.gov/reg5rcra/wptdiv/permits/index.htm.

U.S. EPA has set a public comment period of forty-five (45) days from March 30 to May 15, 2006 to encourage public participation. A copy of the Statement of Basis is enclosed for your information, and for the public to review.

During the comment period, U.S. EPA will accept written comments on the proposed remedy and alternatives. If significant comments are received, U.S. EPA will schedule a public meeting. After consideration of the comments received, U.S. EPA will select a final remedy and document their decision. If you have any questions regarding this matter, please contact me at (312) 353-2720.

Sincerely yours,

Brian P. Freeman, Senior Chemist
Corrective Action Project Manager
RCRA Enforcement and Compliance Assurance Branch
United States Environmental Protection Agency
freeman.brian@epa.gov

Enclosure

cc: Clay Spencer, MDEQ (w/o enclosure)
Ron Stone MDEQ (w/o enclosure)
Jeffrey Bolin, The Dragun Corporation (w/o enclosure)
Jack Garavanta, Henkel Corporation (w/o enclosure)

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY	WASTE AND HAZARDOUS MATERIALS DIVISION LAND USE BASED REPONSE ACTIVITY APPROVAL AND TRACKING FORM	REVISION DATE 8/30/2004

Note: To use this form please make sure of the following:
(1) Form is locked (View/Tools bars/Forms/Click "Lock" Icon to activate drop down menus)
(2) Status bar is turned on (Tools/Options/View Tab/Check Show Status bar box)

SITE NAME: Henkel Surface Technologies **COUNTY:** Lewanee **DISTRICT:** Jackson

LOCAL UNIT OF GOVERNMENT (LUG): City of Morenci, MI **SITE ID NUMBER:** MID 058 723 867

PROJECT MANAGER: Freeman

PLAN TITLE: Statement of Basis

PLAN PREPARED BY: Brian P. Freeman (Consultant Name) **DATE:** 2/1/2006 **DATE REC'D:** _____

DATE DEQ'S REVIEW MUST BE COMPLETED: 3/1/2006

- ☒ RAP REVIEW
- ☐ RAP-CLOSURE REVIEW
- ☐ RAP MODIFICATION REVIEW
- ☐ IRDC REVIEW
  - ☐ Media: _____
  - ☐ Portion Of Facility: _____
- ☐ CONCEPTUAL REVIEW
- ☐ OTHER _____

PLAN CATEGORY:

GENERIC:
- ☐ Residential
- ☐ Commercial I
- ☐ Commercial II
- ☐ Commercial III
- ☐ Commercial IV
- ☐ Industrial

LIMITED:
- ☒ Commercial
- ☐ Industrial
- ☐ Recreational
- ☐ Residential
- ☐ Other

SITE SPECIFIC:
Basis

DESCRIPTION OF PROPOSED RESPONSE ACTIVITIES: Soil Removal in Waste Area 6, and Deed restrictions for limitation of land use to Commercial/Industrial, and Deed Restriction prohibiting use of shallow grounwater

BRIEF SUMMARY OF SITE INFORMATION: **Facility is subject to RCRA Corrective Action and MDEQ pt 111 Regulations. FACILITY BACKGROUND**

The site is located on the west side of Mill Street approximately 350 feet north of Main Street in Morenci; Lenawee County, Michigan. (see Site Location Map on Page 5.) The Site contains approximately four acres of grass covered land and is completely fenced. Bean Creek trends north/south near the western property boundary. The Site is located in a predominantly urban area. Commercial properties are located south and southeast of the Site. Bean Creek and a public park are located west of the Site, residential properties are located east of the Site, and agricultural land is located north of the Site.

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

Historical uses of the site included manufacture and storage of chemical surface coating products by numerous owner/operators from 1928 to 1988. During this period, the site was owned by Ford Motor Company, Oxy Metals Corporation (a division of Occidental Chemical Corporation), Parker Chemical, Hooker Chemical and Henkel Corporation. Prior to 1928, the site was used for a dairy farm and creamery.

The Site is currently vacant and covered with grass. No industrial operations are currently conducted on the Site. The east portion of the Site has been legally separated and sold to the City of Morenci. Historical operations at the Site include the manufacture and warehousing of chemical surface coating products by numerous owner/operators. Prior to these operations, the site was used by a dairy farm and creamery from 1917 to 1927. The Site has been historically owned and operated by Oxy Metals Corporation (division of Occidental Chemical Company), Hooker Chemical Company, Ford Motor Company, and Parker Chemical. These companies had active operations at the Site from 1928 to 1988. During October 1981, Oxy Metal merged into Hooker Chemicals and Plastics Corporation and during August 1982, Hooker changed its name to Occidental Chemical. During October 1983, Parker Division of Occidental Chemical was sold to Parker Chemical Company. In April of 1987, Henkel Corporation acquired Parker Chemical and Parker Chemical continued to operate
at the Site. On January 1, 1989, Amchem Products, Inc. and Parker Chemical Inc. merged into Henkel Corporation. **information may be attached**

CHECKLIST OF PLAN ELEMENTS:

FACILITY CHARACTERIZATION AND ANALYSIS:

Completion Of Worksheet: Cleanup Criteria Evaluation ☒ **If completed, attach.**

Discussion of Statistical Methods Used to Evaluate Data: *Statistics Not Used* **Comments** _____

Remedial Investigation Adequate To Select Appropriate Remedial Action *Yes*

Evaluation of Demolition Impact on Environmental Conditions: *No Demolition* **Comments** _____

Documentation That Cleanup Criteria In The Plan Are Appropriate For The Site: *Adequate*

- **Identification of Wellhead Protection Zone:** *Adequate* **Comments:** _____
- **For Generic And Limited Cleanup Criteria:**
  - **Evidence of Zoning:** *Adequate* **Comments:** Land has been used as commercial/industrial since 1920
  - **Documentation that current zoning is consistent with proposed criteria:** *Adequate* **Comments:** _____
  - **Confirmation that expected activity patterns are consistent with exposure assumptions:** *Adequate* **Comments:** _____
- **For Site Specific Criteria (including property not zoned): Documentation that cleanup criteria are appropriate:** *Adequate* **Toxicological Review:** *Yes* **Date:** 4/2002 **Comments:** Performed by Techlaw for EPA in April 2002, and review was performed by EPA risk assessor prior to CA 750 Determination (Human Health Risks under control) for Henkel in August 2004

Analysis of Compliance With Great Lake Agreements: *No impact or likely impact to Great Lakes* **Comments:** _____

PROPOSED REMEDIAL ACTION:

Completion Of Worksheet: Evaluation Of Proposed Response Activities For Conditions Where Action Is Needed
☒ **If completed, attach.**

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

Description Of How Remedial Action Will Meet Requirements Of Act And Rules: Restriction of land use to commercial uses, and prohibition of shallow groundwater use protects human health according to MDEQ Par 201 requirements.

SITE CAP/COVER: **Required?** *No* **Proposed?** *Not Required* **Adequate?** *Not Required*
If required, indicate under which statute:

- **Nature Of Site Cap/Cover:** ☐**Exposure Barrier** ☐**Infiltration Barrier** ☐**Both**
- **Proposed Intensive Recreation Use (Sports fields, playground, camp site, motorized vehicle trail)**
- **Description And Location Of Site Cap/Cover:**
  - **Minimum Thickness:** _____
  - **Reproducible Benchmark:** _____
  - **Nature Of Barrier:** _____
  - **Location (Attach Map)**

Comments: _____

ZONING → Commercial? Industrial? Deed Restriction who owns property outside fence.

GROUNDWATER NOT IN AN AQUIFER: *Not Applicable*
Basis: _____

GROUNDWATER REMEDIATION WAIVER: **Required?** *No* **Proposed?** *No* **Adequate?**

- **RULE 705(5) (plume expansion) Justification:** _____
- **RULE 705(6) (active remediation or documentation of biological or chemical process) Justification:** _____

Comments: In September of 2002, Henkel conducted additional soil and groundwater sampling in an agreement with USEPA. Henkel sampled four groundwater monitoring wells (MW) on the site, and volatile organic compounds (VOCs) - (vinyl chloride, 1,1-dichloroethene (1,1 DCE), cis 1,2-dichloroethene (1,2 DCE) and trichloroethylene (TCE) were detected in MW3. Only vinyl chloride was present in excess of both the drinking water criterion and the Groundwater/Surface Water Interface Criterion (GSI) (30ppb). Although vinyl chloride was found in excess of drinking water standards, the groundwater was not used for drinking purposes, nor did it flow beyond Bean Creek, which is a hydraulic boundary. In 2002, the following chemicals were detected in Monitoring Well 3 (MW3): 1,1 dichloroethane, 1,1 dichloroethene, bromodichloromethane, chloroform, cis-1,2 dichloroethene, trans 1,2 dichlroethene, trichloroethene, trichlorofluoromethane, 1,1,1 trichloroethane and vinyl chloride.

Only vinyl chloride exceeds the U.S. EPA's MCL of 2 parts per billion, which is equal to the Michigan Department of Environmental Quality Part 201 standard. The actual concentration of vinyl chloride in MW3 is 32 parts per billion.

Date Approved: 8/26/2003

GROUNDWATER VENTING TO SURFACE WATER: *Yes* **ACUTE:** *No*

MIXING ZONE: **Required?** *Yes* **Proposed?** *Yes* **Request Date:** _____ **Adequate?**

- **Preliminary Mixing Zone Previously Provided** **Date** _____
- **Mixing Zone RAT Review Date:** _____
- **Groundwater Vents To Area Of Recreational Use** **Comments:** _____
- **Certification Statement:** **Comments:** _____

Comments: _____
Water Division Response Date: _____ **Authorization Date:** _____

MONITORING: **Required?** *No* **Proposed?** **Adequate?**

- **Description Of Activities:** _____
- **Schedule:** _____
- **Contingency Provisions:** _____
- **PPP** (*Person Proposing Plan*) **Access Assured To Allow Monitoring Activities:** _____

Comments: _____

OPERATION AND MAINTENANCE PLAN: **Required?** *No* **Proposed?** **Adequate?**

- **Description Of O&M Activities Including Any Preventative Maintenance And Inspections Of Exposure Barriers Or Permanent Markers, Etc.:** _____
- **Schedule Of O&M Activities Including Frequency Of Inspections, Triggers For Required Response Activities, And Times Frames For Required Responses:** _____

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

- **PPP Access Assured To Allow O&M Activities: _____**

Comments: _____

PERMANENT MARKERS: Required? *No* **Proposed? Adequate?**

- **Description Of Text _____**
- **Construction Specifications _____**
- **Number And General Location Of Markers: _____**

Comments: _____

PUBLIC PARTICIPATION: Required? *Yes* **Proposed? Adequate?**

- **Public Meeting Requested/Required:** *No* **Public Meeting Date: _____**
- **Notice Date:** 3/2006 **Published In:** Morenci Observer **Public Comment End Date:** May 2006

Comments: After Statement of Basis approved by EPA, it will be Public Noticed.

EASEMENT HOLDERS: Applicable? *No*

- **Identification Name/Address/Nature: Comments: _____**
- **Documentation Of Previous Notice: Comments: _____**
- **Documentation Of Easement Holder Consent To Restrictions:**

Comments: _____

NAER: Required? *No* **Proposed? Adequate?**

Note: All **GENERIC** plan categories (other than residential) require that a Notice of Approved Environmental Remediation (NAER) be filed with the Register of Deeds in the county where the Facility is located

- **Survey: Comments: _____**
- **If not adequate necessary modifications or additional restrictions: _____**
- **Documentation Of Owner's Written Consent: Comments: _____**

Comments: _____

FOR CLOSURE REPORT; Date NAER Filed With Register Of Deeds: _____

RESTRICTIVE COVENANT: Required? *Yes* **Proposed?** *Yes* **Adequate?** *Yes*

Note: All **LIMITED** plan categories require that either a restrictive covenant (RC) be filed with the Register of Deeds in the county where the Facility is located or other acceptable institutional control (IC) be in effect at the Facility.

- **Survey:** *Yes* **Comments:** Deed Retrictions are part of Corrective Measures proposal (HENKEL 009) in Statement of Basis Package
- **All Allowable Uses Under Zoning Are Consistent With Category:** *Yes*
- **If not adequate necessary modifications or additional restrictions: _____**
- **Documentation Of Owner's Written Consent:** *Yes* **Comments: _____**

Comments: _____

FOR CLOSURE REPORT; Date RC Filed With Register Of Deeds: _____

INSTITUTIONAL CONTROL: Proposed? *Yes* **Adequate? Date Of Approval: _____**

Notice Of Aesthetic Impact: *No* **Comments: _____**

- **Documentation Of Owner's Consent:** *Yes* **Comments: _____**
- **Toxicity Assessment Completed:** *Yes* **Comments: _____**
- **Local Ordinance:** *No* **Comments: _____**
- **Determination That Restrictive Covenants Are Impractical** *No*
- **Local Ordinance Enacted:** *No* **Date _____ Copy Included: Comments: _____**
- **Local Ordinance Proposed/Draft With Confirmation LUG Willing To Enact**

Comments: _____

LEGALLY ENFORCEABLE AGREEMENT: Required? *Yes* **C&E Review:**

- ☐ **Proposed Land Use Based Agreement**
- ☐ **Proposed Administrative Order By Consent**
- ☐ **Proposed Other: _____**

Comments: _____

Note: Upon receipt of draft Leagally Enforceable Agreement, forword to C & E Section for revew.

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

Yes

FINANCIAL ASSURANCE MECHANISM: Required? ~~NO~~ Proposed? Adequate?
Type: ☐Escrow Account ☐Letter Of Credit ☐Certificate Of Deposit
☐ Trust Fund ☐Performance Bond ☐ Other _____
In Current Year Dollars Based Upon Third Party Costs:
Estimated Annual O&M Amount: $_____
Estimated Annual Environmental Monitoring Amount: $_____
Estimated Annual Documentation of Integrity of Exposure Barriers and Compliance With Land or Resource Use Restrictions Amount: $_____
Estimated DEQ Oversight Amount: $_____
Comments: _____
Note: Upon receipt of Financial Assurance Mechanism, forward to STSWS – Solid Waste Technical Support Unit or HWTSU – Hazardous Waste Management Unit, as appropriate, for review.

ABANDONMENT OF MONITOR WELLS: Required? ~~NO~~ Yes
Short Term: Proposed? Adequate?
Comments: _____
Long Term: Proposed? Y **Adequate?** Y Say how they will abandon well.
Comments: _____

Completion Of Worksheet: Demonstration That Response Activity Is Capable Of Meeting The Performance Standards Applicable To The Response Activity ☐ **Date:** _____

Note: If any component of the RAP is recommended for denial, explain condition or requirement which would make the RAP approvable:
Comments: _____

DISTRICT/SECTION TEAM SIGNATURES:

PROJECT MANAGER: _____ **DATE:** 2/15/06
Brian P. Freeman

SENIOR DISTRICT/SECTION GEOLOGIST: _____ **DATE:** _____

SENIOR EQA: _____ **DATE:** _____

DISTRICT/SECTION SUPERVISOR: _____ **DATE:** _____

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

RAT REVIEW

☐ **APPROVED AS RECOMMENDED BY DISTRICT/SECTION PROJECT TEAM**

☐ **APPROVED WITH ADDITIONAL COMMENTS:**

☐ **REFERRED BACK TO PROJECT MANAGER FOR FURTHER ACTION:**
Note: If unapprovable , explain condition(s) or requirement (s) which would make the RAP approvable:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Need for further RAT review ☐ **Yes** ☐ **No**

RAT APPROVAL/DENIAL SIGNATURE:

CHAIRPERSON OF RAT: _____ **DATE:** _____

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

CLEANUP CRITERIA EVALUATION WORKSHEET

For each condition, assess relative to *generic residential* criteria and statute obligations, then record information by checking appropriate box(es) and recording conclusions as **WC** (**W**ithin **C**riteria or Guidesheet Parameters) or **AN** (**A**ction **N**eeded). Provide brief rationale for conclusions.

Concentrated Hazardous Substance Sources:

1. Abandoned substances that are being dispersed or may be dispersed in the future.
   - A. ☐ Containerized hazardous substances present. ☐ Free phase liquids present.
     ☒ Other sources (soils/gw "hot spots," etc.) present; type: **Two Spots with PAHs, VOCs > Residential Part 201 Criteria**
     ☐ Sources related to post June 5, 1995 releases present. ☐ Party proposing plan subject to Sec. 14.

B. Containerized hazardous substances.	WC	____
Free phase liquids.	WC	____
Source from post June 5, 1995 releases.	WC	____
Analysis of source controls.	WC	____

Risks due to Groundwater Contamination:

2. Drinking water usage	~~WC~~ AN	~~None~~ Deed Restriction
3. Dermal exposures such as by utility workers	~~AN~~ WC	Meets Commerical part 201 criterion
4. Indoor air hazards (chronic/systemic)	WC	____
5. Hazards to surface waters	AN	Meets GSI Criterion

Risks due to Soil Contamination:

6. Hazards due to direct contact (ingestion, dermal)	AN	Deed Restriction to commercial land use
7. Ambient air inhalation hazards	WC	____
8. Indoor air inhalation hazards	WC	____
9. Injury to drinking water use of aquifer	WC	____
10. Risk from contact (utility work) with GW	~~AN~~ WC	Deed Restriction Prohibiting USe of Shallow GW
11. Causes GW to be hazardous to SW	AN	Meets GSI Criterion
12. Polluted soil runoff to surface water	WC	____

Risks due to Contamination of Surface Water Sediments:

13. Aquatic flora/fauna/food chain hazards	WC	____

Other Risks:

14. Acute toxic impacts & physical hazards	WC	____
15. Ecological & aesthetics	WC	____

MODIFY TO SHOW EXISTANCE OF GLASS HAZARDS NOTE ON DEED RESTRICTION

Completed by: _____ Date: 2/15/06
Brian P. Freeman

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

EVALUATION OF PROPOSED RESPONSE ACTIVITIES WORKSHEET

From the "Cleanup Criteria Evaluation" worksheet, record below both the number, and name, of each condition for which it was concluded there is a need for "**A**ction **N**eeded" in the plan. Any particular additional conditions that also need mitigation which may be unique to the site should also be listed at the end. Following each listed condition, briefly record *what* response activities are proposed by the plan, and then preliminary conclusions as to the adequacy of the response activities. For response activities which are needed and not provided, or provided but not adequate, describe response activities that could be taken to adequately address the condition (continue on additional sheet if needed).

Conditions to be addressed and conclusions:

Condition #1 / Source Control: **Waste Area 6 - soil removed and hauled to landfill, confirmation sampling yielded lead below MDEQ Pat 201 Commercial Standards. Two hot spots of VOCs and PAHs remain, which exceed residential Part 201 Criteria**
Actions proposed and/or reported in Section 18(8) analysis: **- Deed Restriction to Commercial Land Use**
Critique: -
Conclusion: RAP Element ☐ Adequate or ☐ Not Adequate
Condition #2: **Groundwater contaminated with VOCs**
Response Activities proposed: **- Only Vinyl Chloride exceeds MCL at 30ppb, but shallow groundwater not used for drinking, and Bean Creek is hydraulic boundary. GW meets GSI criteria**
Critique: -
Conclusion: RAP Element ☐ Adequate or ☐ Not Adequate
Condition # :
Response Activities proposed: -
Critique: -
Conclusion: RAP Element ☐ Adequate or ☐ Not Adequate
Condition # :
Response Activities proposed: -
Critique: -
Conclusion: RAP Element ☐ Adequate or ☐ Not Adequate
Condition # :
Response Activities proposed: -
Critique: -
Conclusion: RAP Element ☐ Adequate or ☐ Not Adequate

Completed by: **Brian P. Freeman** Date: **2/15/2005**

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

PERFORMANCE STANDARDS WORKSHEET

Concentrated Hazardous Substance Sources:

Source controls.	WC	_____

Risks due to Groundwater Contamination:

Drinking water usage *Prohibit construction or use of wells on the property to prevent unacceptable exposure through ingestion of drinking water and impact on the groundwater plume that would affect the reliability of the remedy.*	AN	Restrict potable water use? YES Need to restrict other water uses? NO _____ Need to provide alternative water? NO Requires Notification of Migration? NO OTHER Deed Restriction imposed prohibiting use of shallow groundwater
Dermal exposures such as by utility workers	~~AN~~ WC	Deed Restriction imposed prohibiting use of shallow groundwater
Indoor air hazards (chronic/systemic)	WC	_____
Hazards to surface waters	AN	Meets MDEQ GSI Criteria. Sediments sampled in 2004, not impacted.

Risks due to Soil Contamination:

Hazards due to direct contact (ingestion, dermal) *Install and maintain cover to limit unacceptable exposure through direct contact.*	WC	Survey area requiring exposure barrier? NO Provide minimum exposure barrier? NO Maintain integrity of barrier? NO Requires Easement Holder notification? NO OTHER Deed Restriction prohibiting Residential Land USe
Ambient air inhalation hazards	WC	_____
Indoor air inhalation hazards	WC	_____
Injury to drinking water use of aquifer *Maintain barrier to limit leaching of hazardous substances to reduce unacceptable risks of injury to drinking water use*	WC	_____
Risk from contact (utility work) with GW	~~AN~~ WC	Deed Restriction imposed prohibiting use of shallow groundwater
Causes GW to be hazardous to SW *Maintain barrier to limit leaching of hazardous substances to reduce unacceptable risks of injury to surface waters.*	WC	Meets GSI Criteria
Polluted soil runoff to surface water	WC	_____

Risks due to Contamination of Surface Water Sediments:

Aquatic flora/fauna/food chain hazards	WC	_____

Other Risks:

:ute toxic impacts & physical hazards	WC	_____
Ecological & aesthetics	WC	_____

APPROVAL AND TRACKING FORM

Site Name:
RAT Date:

APPROVAL OF PERFORMANCE STANDARDS:

CHAIRPERSON OF RAT: _____ **DATE:** _____

C:\Documents and Settings\epauser\Local Settings\Temp\notesC9812B\henkelSOB4.doc.zip

Name	Type	Modified	Size	Ratio	Packed	Path
henkelSOB4.doc	Microsoft Word Document	2/16/2006 12:08 PM	369,664	13%	323,246	
1 file(s)			**369,664**	**13%**	**323,246**	